

PRELIMINARY SERVICE MANUALMODEL **AM-2850/2950**

DATE January, 1979

I. TECHNICAL DATA1. Model AM-2850POWER AMPLIFIER SECTION

Rated Output Power

2-Channels Driven

95 watts per channel, minimum RMS, at 4 ohms from 20 to 20,000 Hz with no more than 0.08% total harmonic distortion.

85 watts per channel, minimum RMS, at 8 ohms from 20 to 20,000 Hz with no more than 0.08% total harmonic distortion.

2 × 140 watts into 8 ohms at 1 kHz, with no more than 0.08% total harmonic distortion.

2 × 100 watts into 8 ohms at 1 kHz, with no more than 0.08% total harmonic distortion.

Frequency Response

Power Bandwidth (IHF)

Main in: DC to 100kHz +0dB, -0.5dB

10 Hz to 40 kHz/8 ohms

(Total Harmonic Distortion: 0.08%)

Signal to Noise Ratio (IHF)

PHONO

Better than 75 dB

AUX

Better than 95 dB

Residual Noise

Less than 0.3 mV at 8 ohms

Channel Separation (IHF)

PHONO

Better than 50 dB at 1kHz

Damping Factor

More than 50 (1 kHz, 8 ohms)

Output Speakers

A, B, C (4 to 16 ohms)/A+B, A+C, B+C (8 to 16 ohms)

Headphone

4 to 16 ohms

PRE AMPLIFIER SECTION

Input Sensitivity/Impedance

PHONO

PHONO 1: 3mV/33/47/100 kohms,

PHONO 2: 3mV/47 kohms

AUX

150 mV/100 kohms

TUNER

150 mV/100 kohms

TAPE MONITOR

PIN: 150 mV/100 kohms,

DIN: 30 mV/100 kohms

MAIN IN

PIN: 1V/47 kohms

Output Level/Impedance

TAPE REC

PIN: 150 mV/1 kohms,

DIN: 150 mV/30 kohms

PRE OUTPUT

1V/47 kohms

Frequency Response

PHONO (RIAA equalization)

30 Hz to 15 kHz +0 dB, -1 dB

AUX, TAPE MONITOR

3 Hz to 60 kHz +0 dB, -1 dB

Tone Control

BASS

±9 dB at 100 Hz

MID RANGE

±10 dB at 1 kHz

TREBLE

±9 dB at 10 kHz

Loudness Control

+10 dB at 100 Hz, +6 dB at 10 kHz

(Volume control set at -30 dB position)

Filter HIGH

-6 dB at 10 kHz

LOW

-6 dB at 30 Hz

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Printed in Japan

Audio Mute -20 dB

MISCELLANEOUS

Semiconductors Transistors: 43, Diodes: 31, IC: 1
 Power Requirements 120V, 60 Hz for US and Canada
 220V, 50 Hz for Europe
 110/220/240V, 50/60 Hz Switchable
 for the other countries
 Dimensions 440(W) × 170(H) × 430(D) mm
 (17.3 × 6.7 × 16.9 inches)
 Weight 15.7 kg (34.5 lbs)

* For improvement purposes, specifications and design are subject to change without notice.

2. Model AM-2950

POWER AMPLIFIER SECTION

Rated Output Power
 2-Channels Driven 130 watts per channel, minimum RMS, at 4 ohms
 from 20 to 20,000 Hz with no more than 0.06 %
 total harmonic distortion.
 120 watts per channel, minimum RMS, at 8 ohms
 from 20 to 20,000 Hz with no more than 0.06 %
 total harmonic distortion.
 2 × 180 watts into 4 ohms at 1 kHz, with no
 more than 0.06 % total harmonic distortion.
 2 × 140 watts into 8 ohms at 1 kHz, with no
 more than 0.06 % total harmonic distortion.

Power Bandwidth (IHF) 10 Hz to 40 kHz/8 ohms
 (Total Harmonic Distortion: 0.06 %)

Signal to Noise Ratio (IHF)
 PHONO Better than 80 dB
 AUX Better than 100 dB

Residual Noise Less than 0.5 mV at 8 ohms

Channel Separation (IHF)
 PHONO Better than 50 dB at 1,000 Hz

Damping Factor More than 50 (1 kHz, 8 ohms)

Output Speakers A, B, C (4 to 16 ohms)/A+B, A+C, B+C (8 to 16 ohms)
 Headphone 4 to 16 ohms

PREAMPLIFIER SECTION

Input Sensitivity/Impedance
 PHONO PHONO 1: 3 mV/33/47/100 kohms,
 PHONO 2: 3 mV/47 kohms
 AUX 150 mV/100 kohms
 TUNER 150 mV/100 kohms
 TAPE MONITOR PIN: 150 mV/100 kohms,
 DIN: 150 mV/100 kohms
 MAIN IN PIN: 1V/47 kohms

Output Level/Impedance
 TAPE REC PIN: 150 mV/1 kohms,
 DIN: 30 mV/30 kohms
 PRE OUTPUT 1V/47 kohms

Frequency Response	30 Hz to 15 kHz +0.5 dB, -0.5 dB
PHONO (RIAA equalization)	3 Hz to 60 kHz +0 dB, -1 dB
AUX, TAPE MONITOR	±10 dB at 100 Hz, 400 Hz, 1 kHz, 10 kHz
Tone Control	+10 dB at 100 Hz, +6 dB at 10 kHz
Loudness Control	(Volume control set at -30 dB position)
Filter HIGH	-6 dB at 8.12 kHz
LOW	-6 dB at 15.30 Hz
Audio Mute	-15 dB, -30 dB

MISCELLANEOUS

Semiconductors	Transistors: 47, Diodes: 31, IC: 1
Power Requirements	120V, 60 Hz for U.S.A and Canada
	220V, 50 Hz for Europe
	110/220/240V, 50/60 Hz Switchable
	for the other countries
Dimensions	440(W) × 170(H) × 430(D) mm
	(17.3 × 6.7 × 16.9 inches)
Weight	17.8 kg (39.2 lbs)

* For improvement purposes, specifications and design are subject to change without notice.

II. PRINCIPAL PARTS LOCATION

1. Model AM-2850

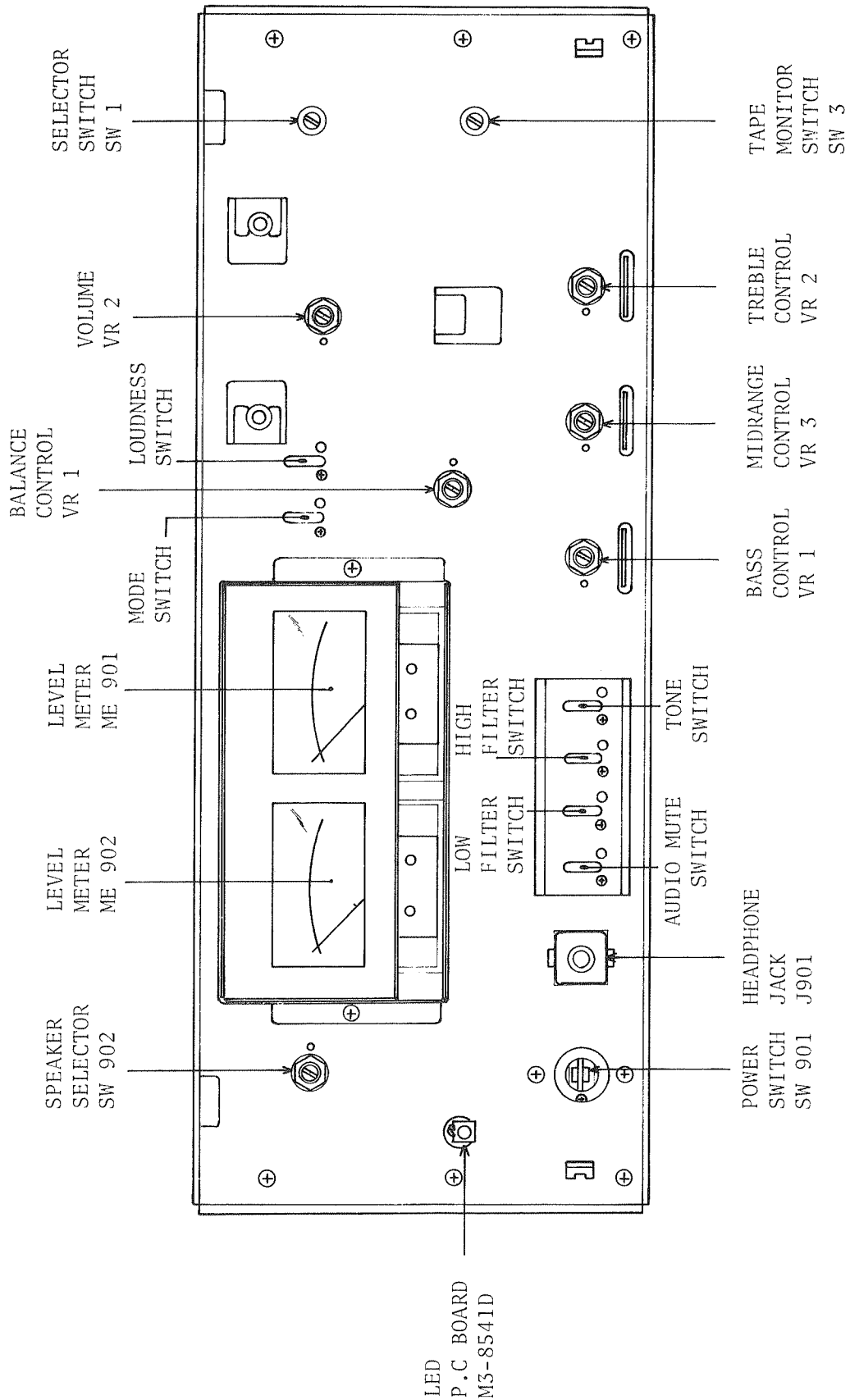


Fig. 1 Front View (AM-2850).

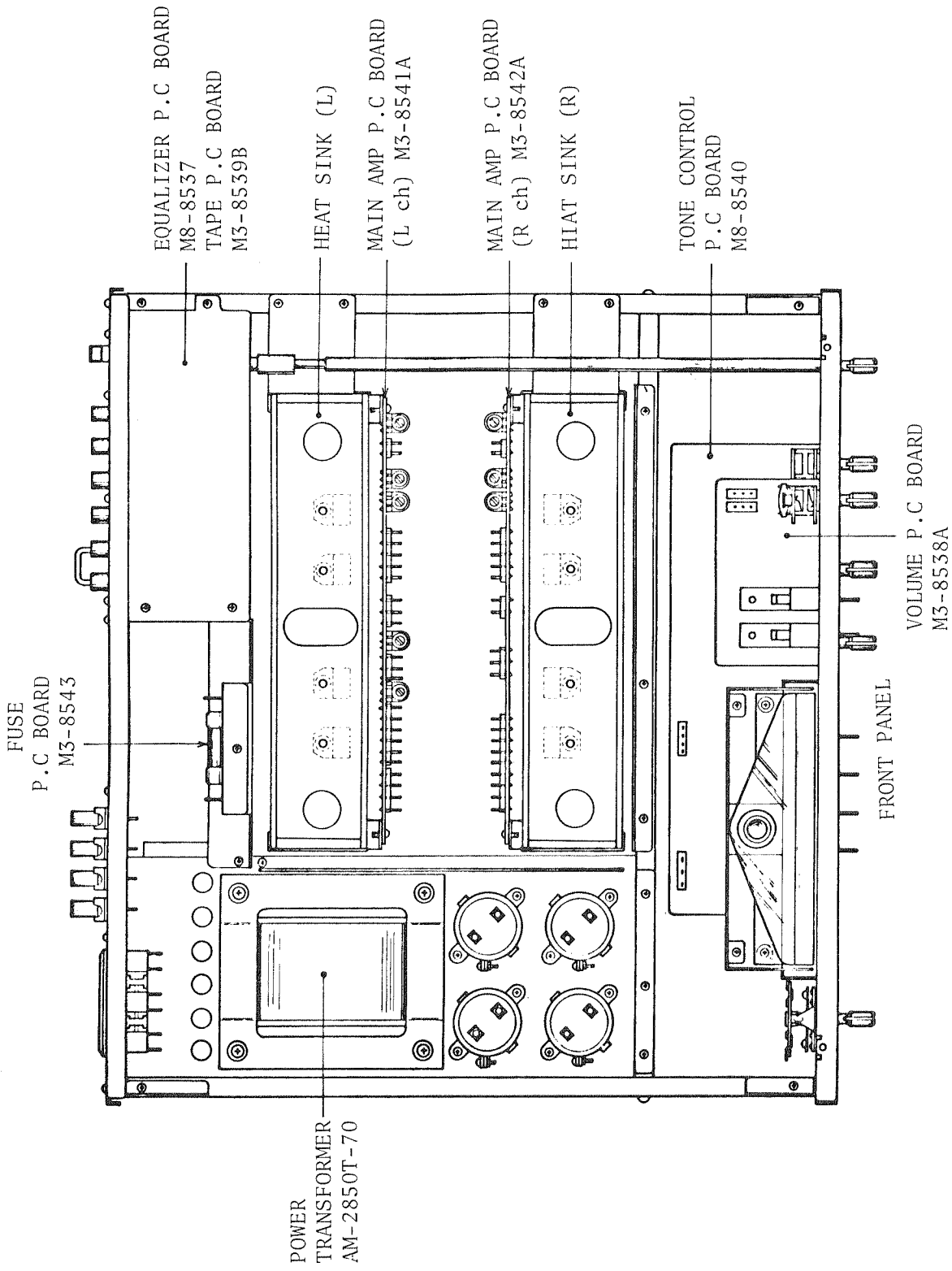


Fig. 2 Top View (AM-2850).

2. Model AM-2950

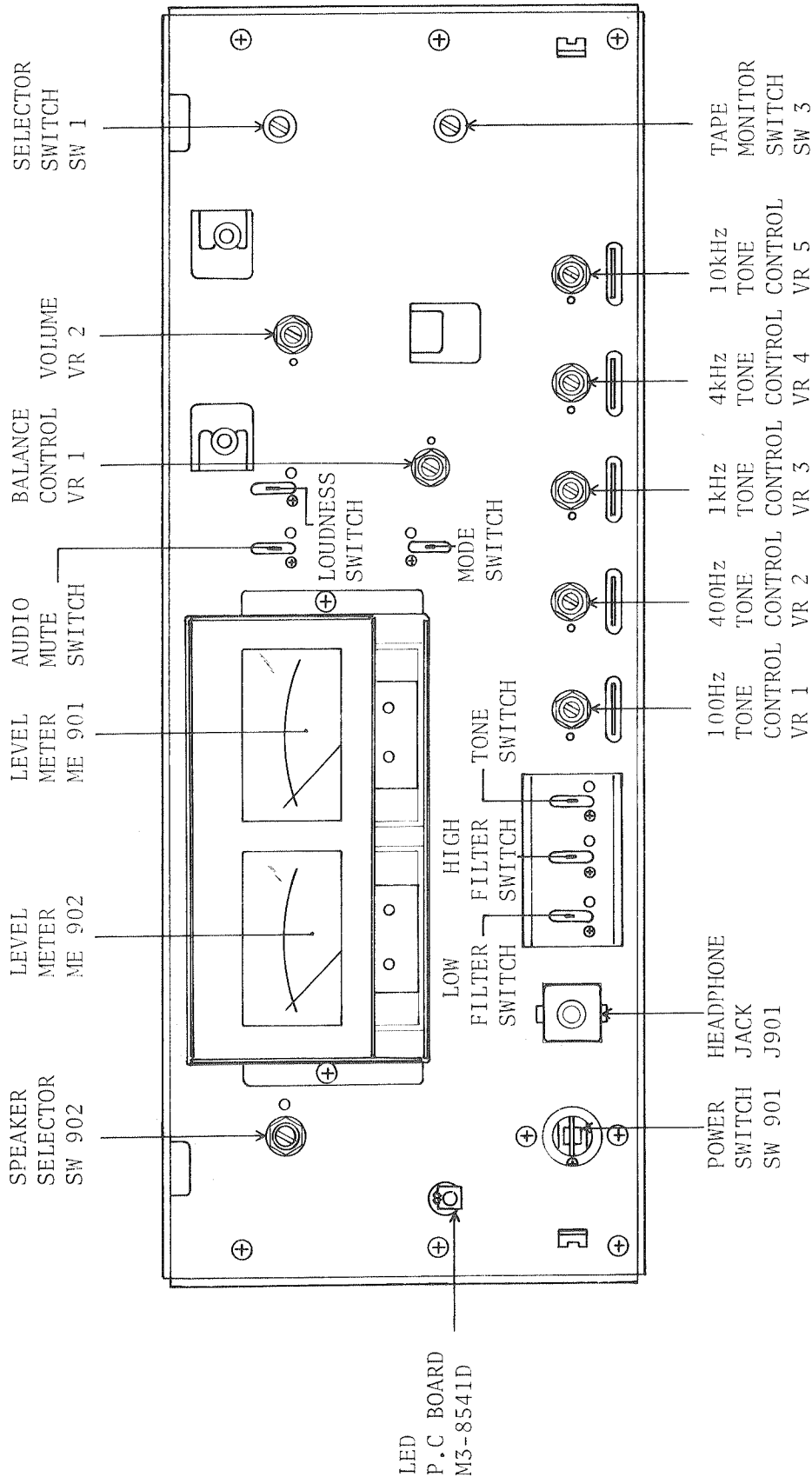


Fig. 3 Front View (AM-2950).

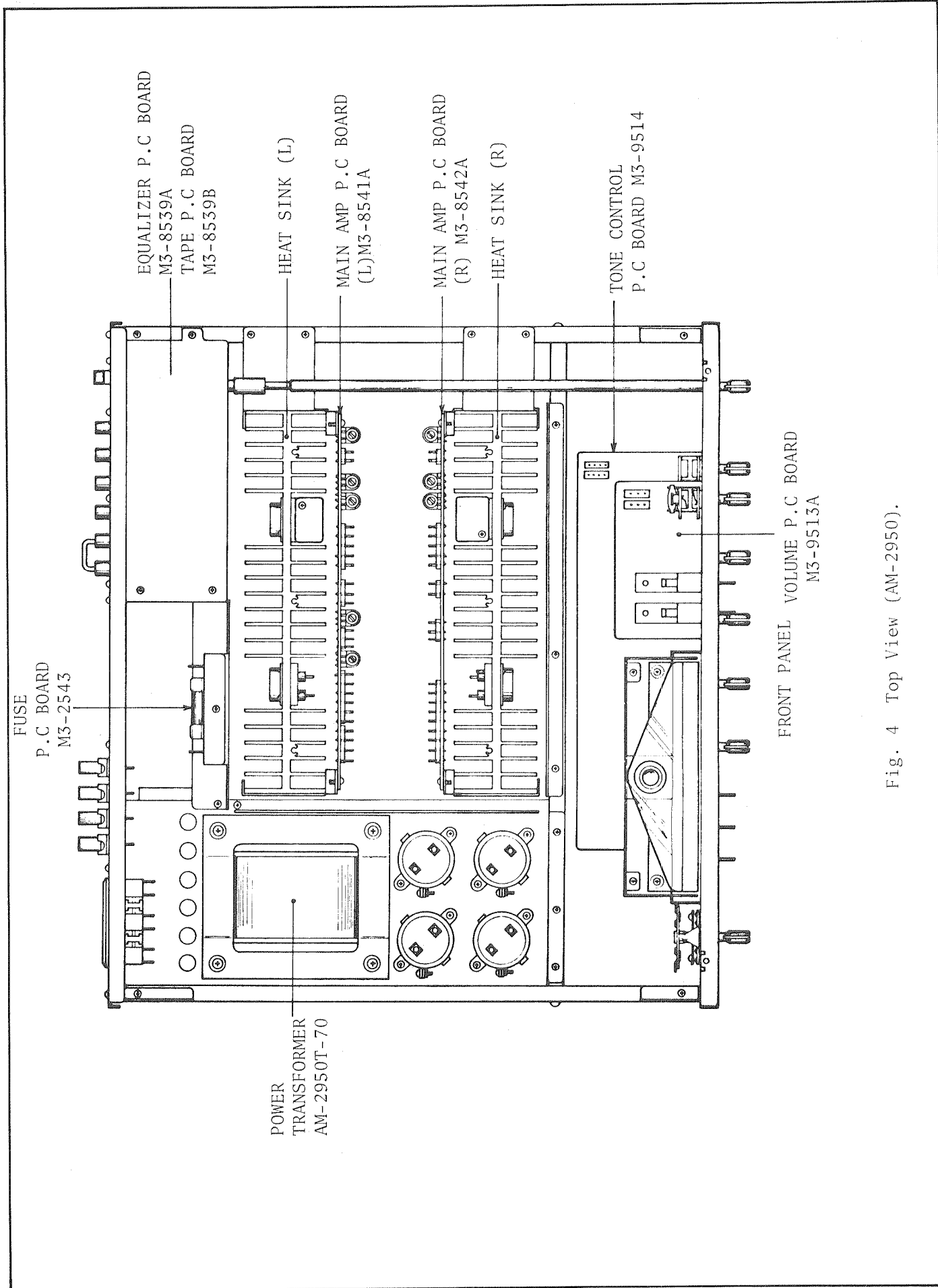


Fig. 4 Top View (AM-2950).

III. AMPLIFIER ADJUSTMENT

NOTE: The letter "b" added to each part symbol in the following figures denotes the right channel (example, TR11b).

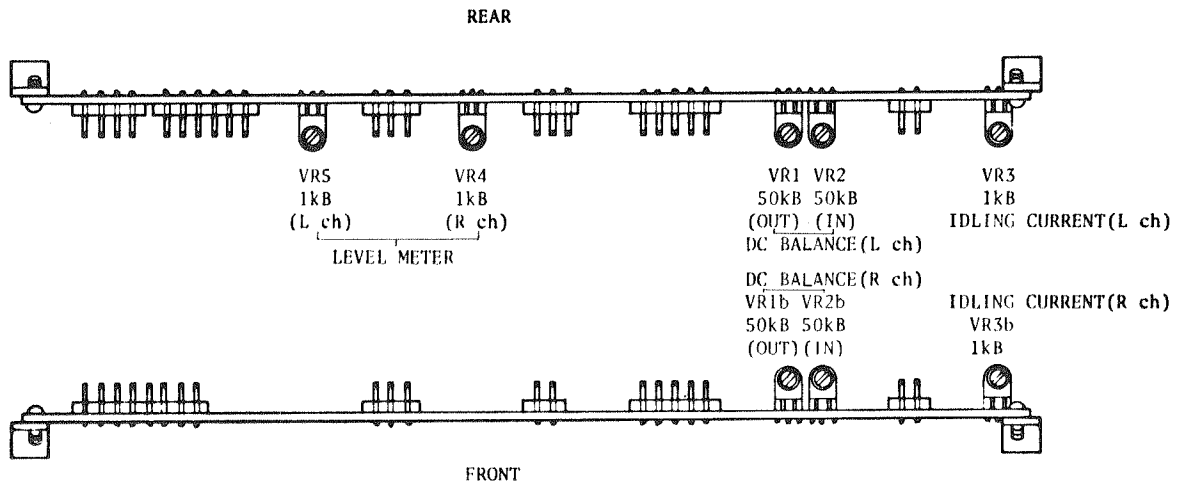


Fig. 5 AM-2850/2950 Main Amp Adjust Points.

3.1 Adjusting the Idling Current (Refer to Figs. 5, 6, 7)

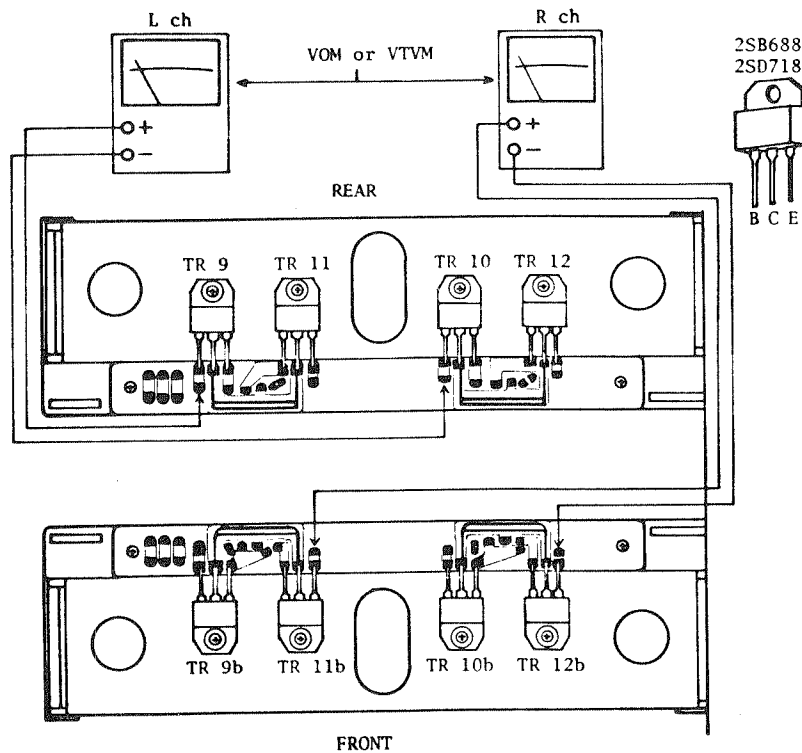


Fig. 6 AM-2850 Idling Current Adjustment Instrument Connection.

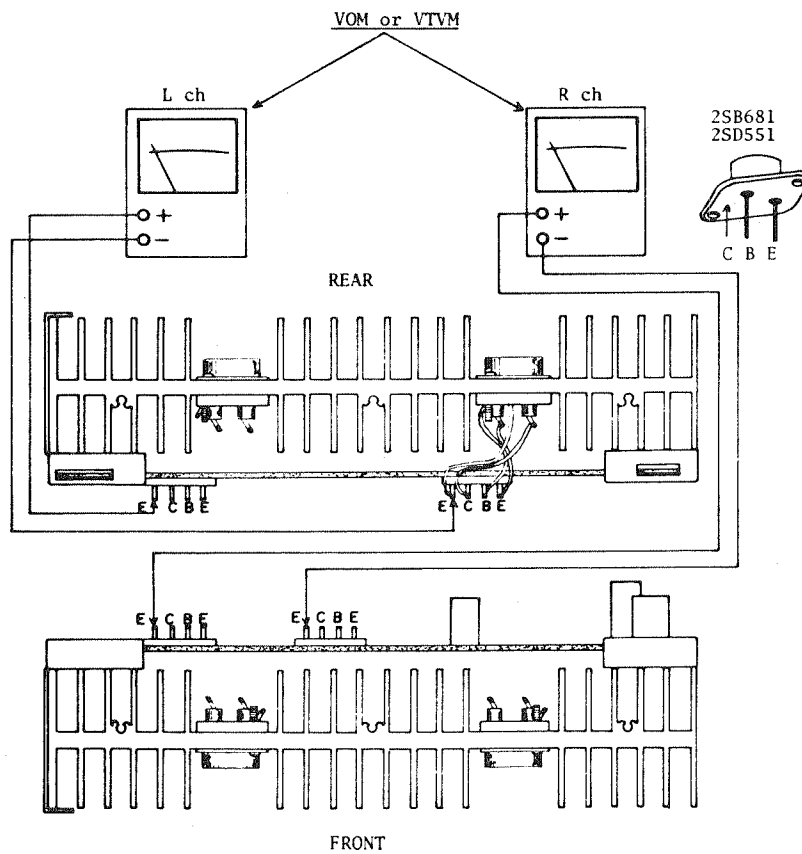


Fig. 7 AM-2950 Idling Current Adjustment Instrument Connection.

1. Disconnect the jumper plugs from the PRE OUT and MAIN IN terminals on the rear panel.
 2. Keep the SPEAKERS Switch on the front panel in the OFF position.
- Now, follow the directions in Table 1 below.

Table 1 Idling Current Adjustment.

STEP	ITEM	ADJUST:	RESULT	METHOD
3	Idling current (Left channel)	VR3 1 kΩ (Main Amp P.C Board)	20 mV	Use a VOM or VTVM with it in 100 mV DC range. The idling current should be 20 mA.
4	Idling current (Right channel)	VR3b 1 kΩ (Main Amp P.C Board)	20 mV	

3.2 Adjusting the DC Balance (Refer to Figs. 5, 8)

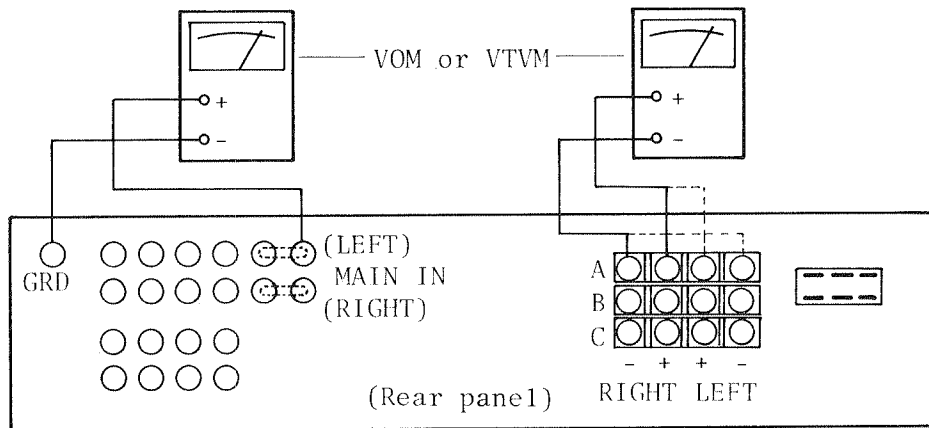


Fig. 8 AM-2850/2950 DC Balance Adjustment Instrument Connection.

1. Disconnect the jumper plugs from the PRE OUT and MAIN IN terminals on the rear panel.
2. Keep the SPEAKERS Switch on the front panel in the OFF position.
3. For the left-channel DC balance, turn VR2 (50k Ω) until the input voltage at the MAIN IN (LEFT) terminal is around 0 V.
4. Turn VR1 (50k Ω) until the output voltage at the SPEAKER A (LEFT) terminal is around 0 V.
5. Repeat Steps (3) and (4) until the input and output voltages are within ± 1 and ± 20 mV, respectively.
6. Similarly, adjust VR2b (50k Ω) and VR1b (50k Ω) for the right-channel DC balance until the input and output voltages at the SPEAKER A (RIGHT) terminal is within ± 1 and ± 20 mV, respectively.

3.3 Adjusting the Level Meter Indication (Refer to Figs. 9, 10, 11)

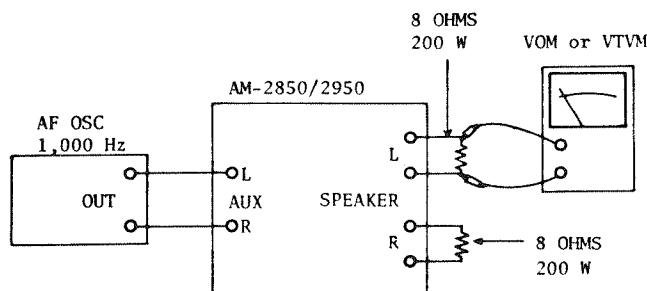


Fig. 9 AM-2850/2950 Level Meter Indication Adjustment Instrument Connection.

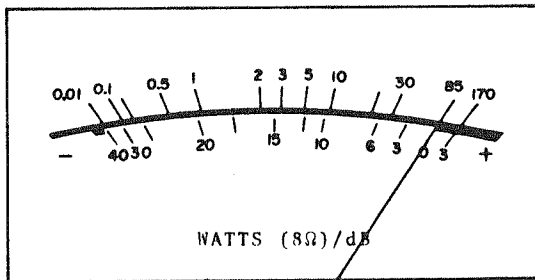


Fig. 10 AM-2850 Level Meter.

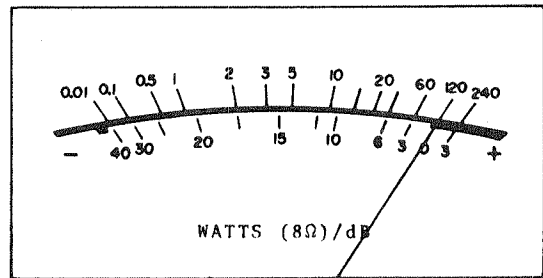


Fig. 11 AM-2950 Level Meter.

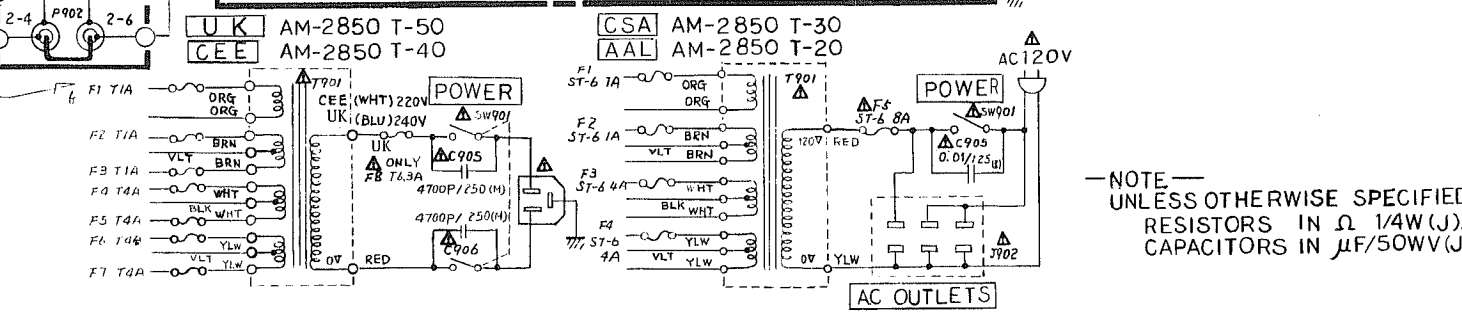
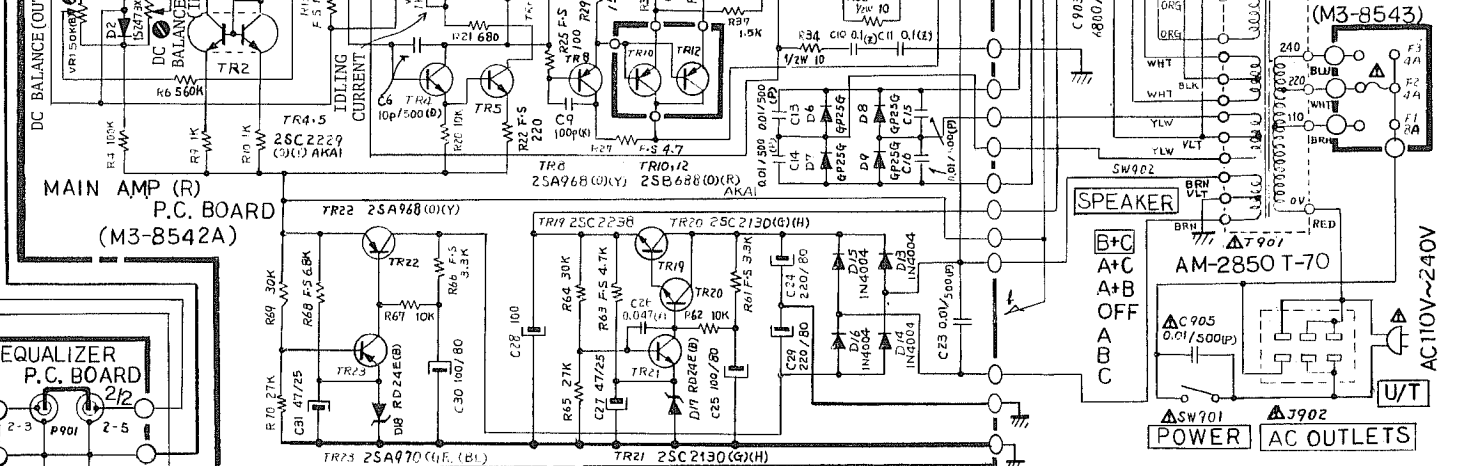
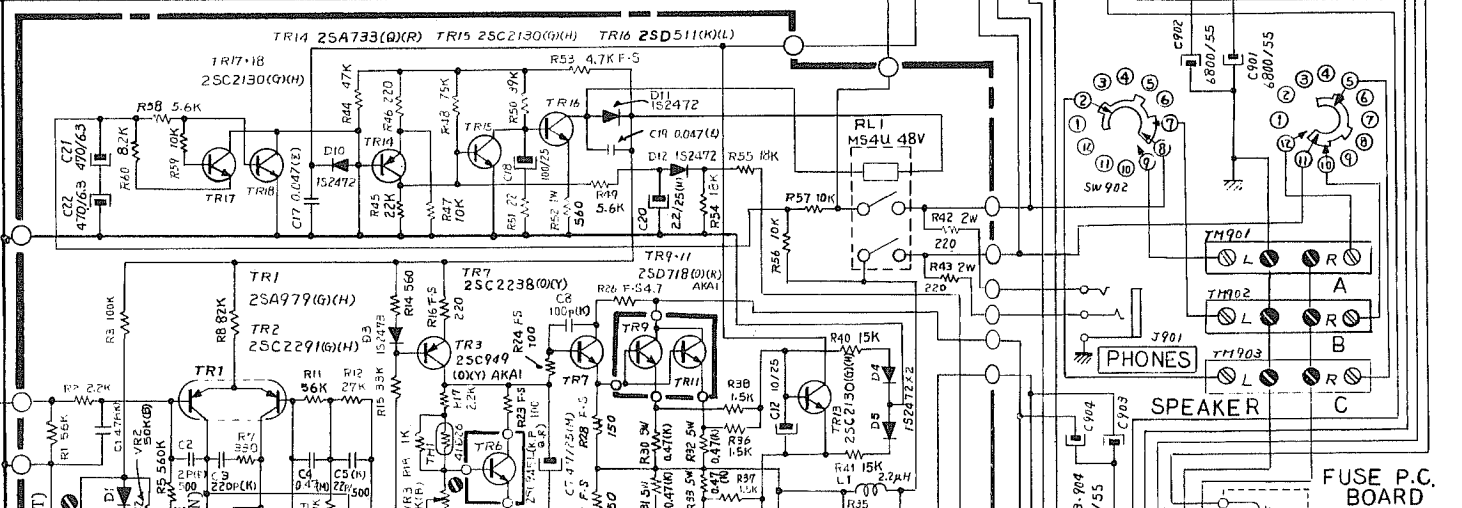
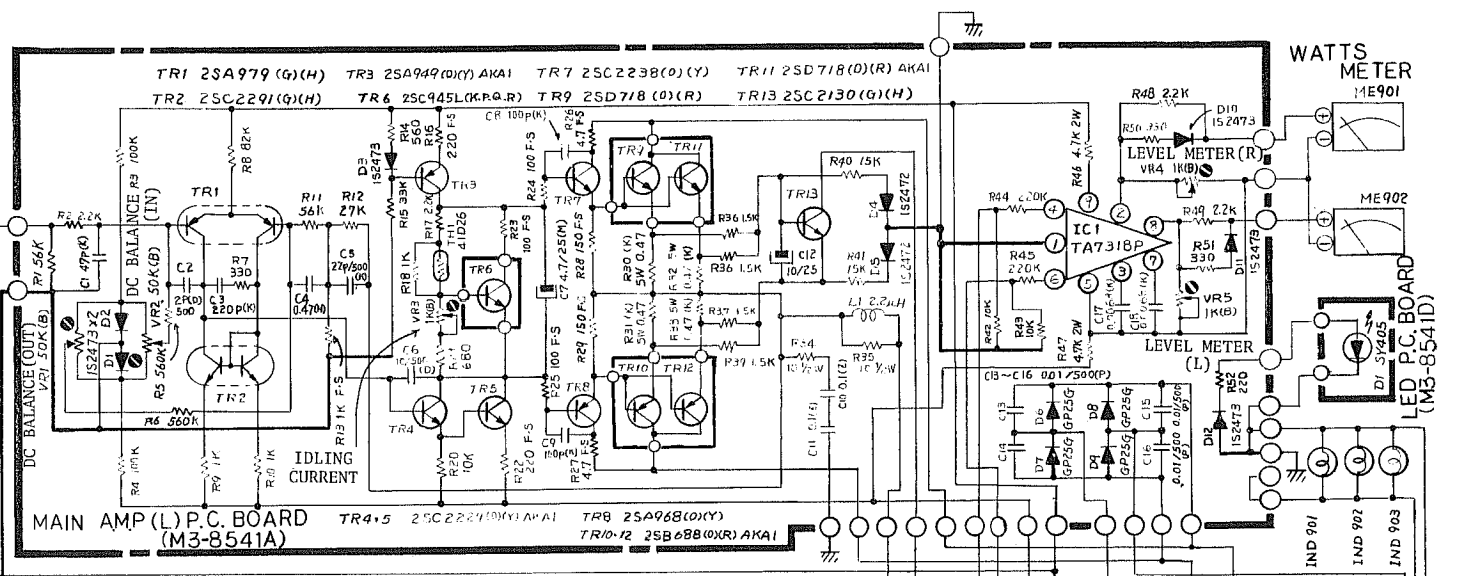
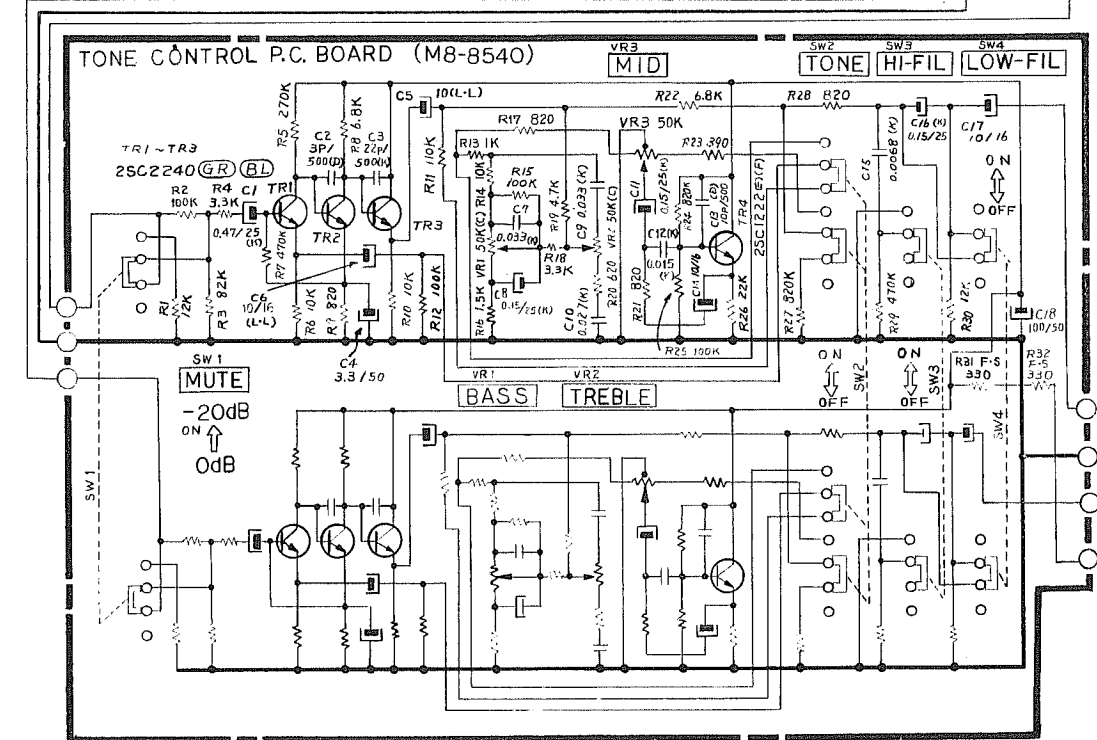
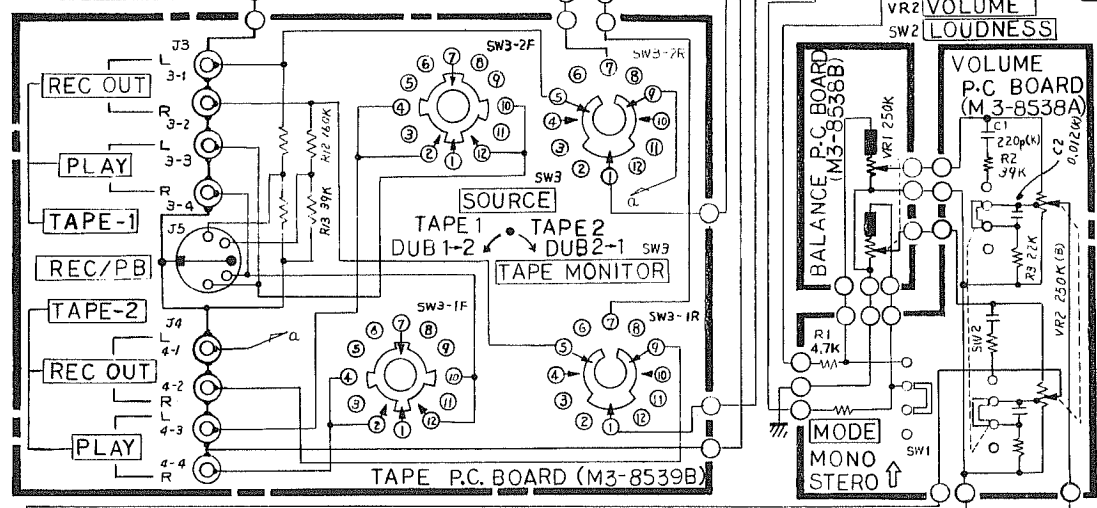
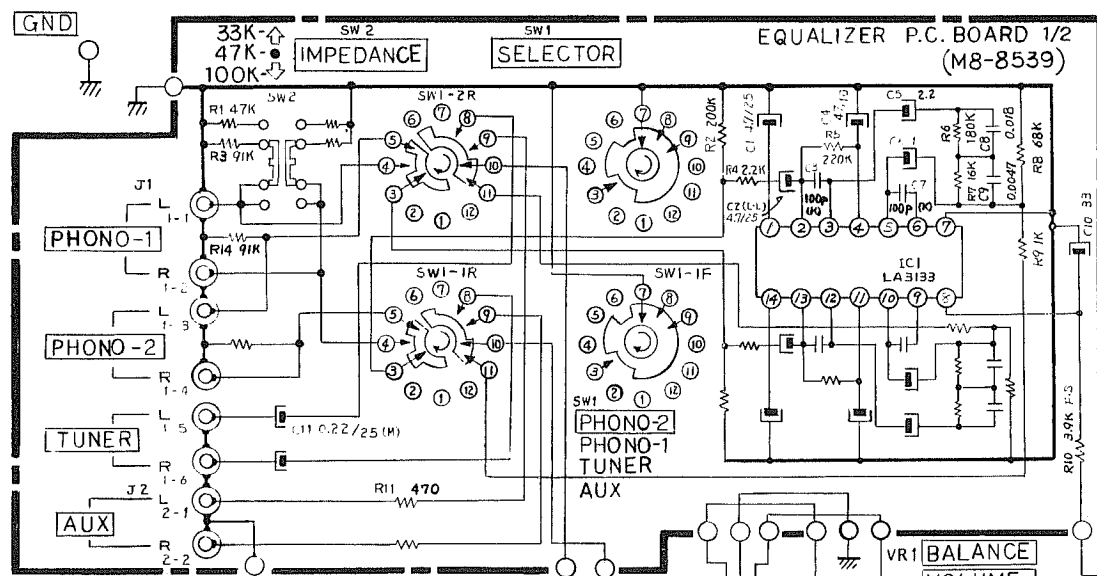
Rated outputs: 85watts (AM-2850) and 120 watts (AM-2950) on each channel.

Set-up

1. Connect an AF oscillator to the AUX jacks on the rear panel of the each model as illustrated in Fig. 9.
2. Connect an 8-ohm load across each SPEAKER A terminal as illustrated.
3. Connect an AC voltmeter across the load.
4. Set the SPEAKERS selector to the A position.
5. Set the BASS, MIDRANGE, TREBLE, and BALANCE controls on the AM-2850 or the 100 Hz, 400 Hz, 1,000 Hz, 4,000 Hz and 10,000 Hz controls on the AM-2950 to their mechanical centers ('0').
6. Throw the MODE switch into the MONO position (lower).
7. Keep the LOUDNESS switch in the OFF position (upper).
8. Set the SELECTOR switch to the AUX position.
9. Set the AUDIO MUTE, FILTER LOW and HIGH, and TONE switches to the OFF position (upper).

Procedures

1. Turn on the AF oscillator and the model under adjustment.
2. Set the AF oscillator output frequency to 1,000 Hz and the level to 150 mV.
3. Adjust the VOLUME control on the front panel until the VTVM reads 26.1 V for the AM-2850 or 31.0 V for the AM-2950.
4. Now, adjust VR5 (Left) and VR4 (Right) on the Main Amp P.C. board (see Fig. 5) until each POWER LEVEL meter deflects to the mark '85' for the AM-2850 or '120' for the AM-2950 (see Figs. 10, 11).

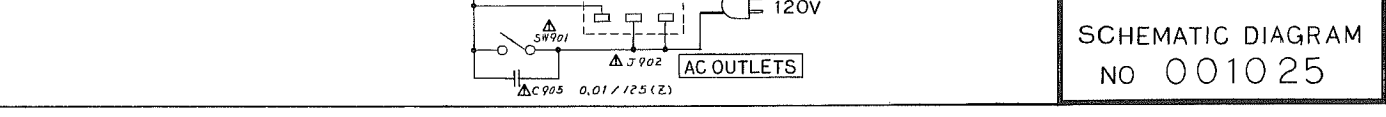
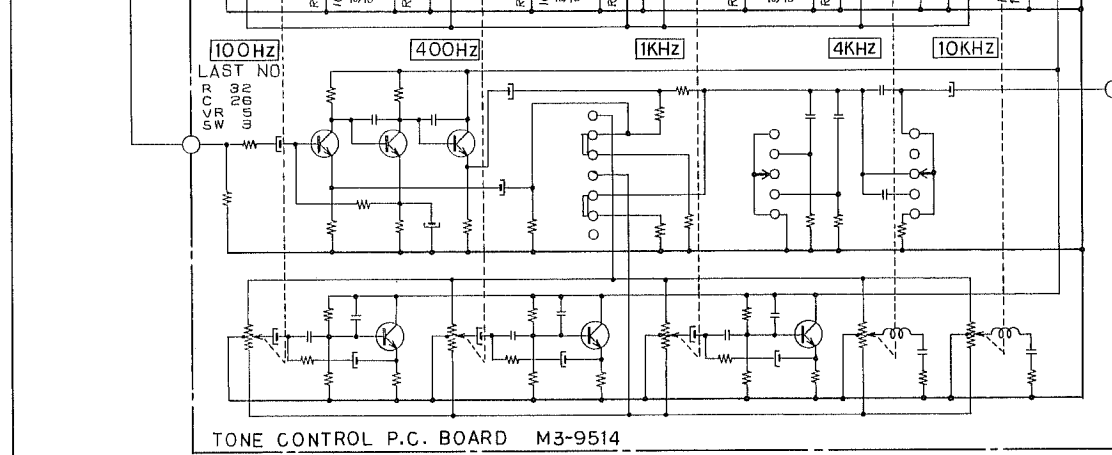
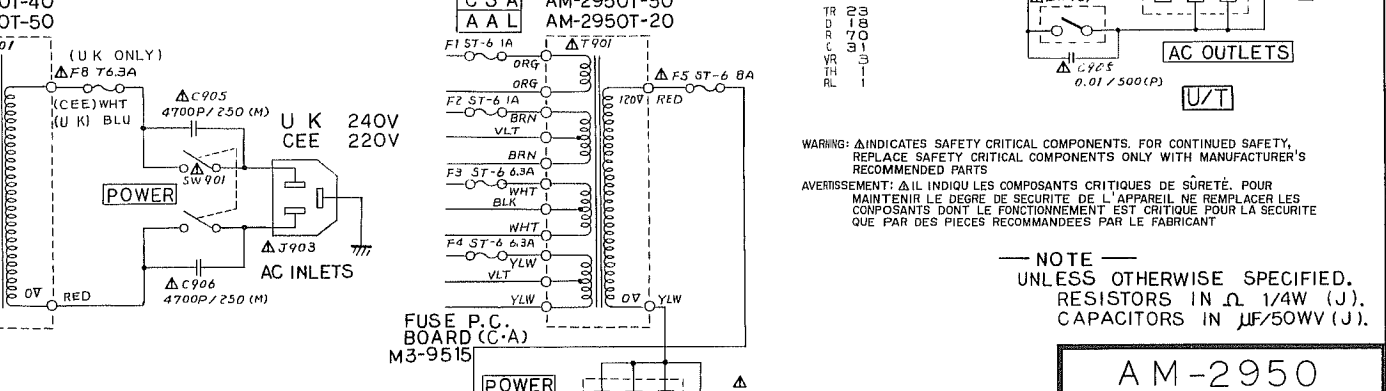
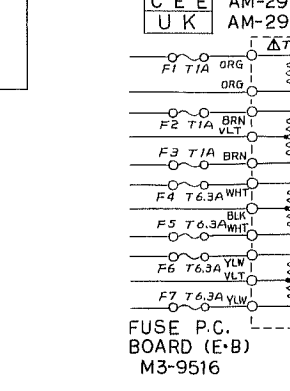
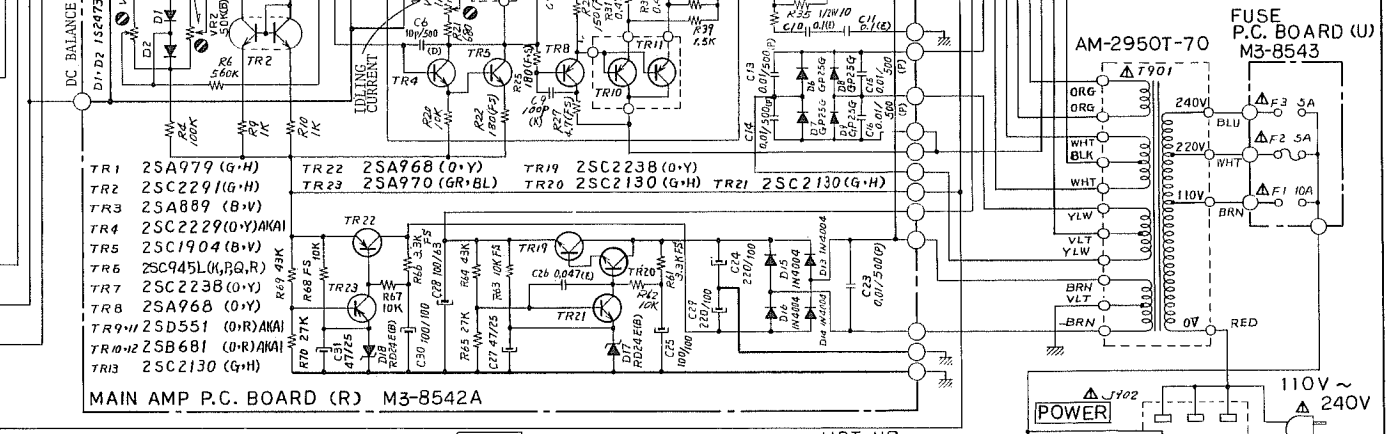
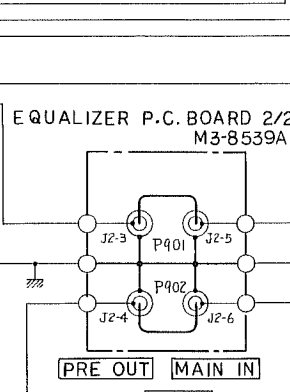
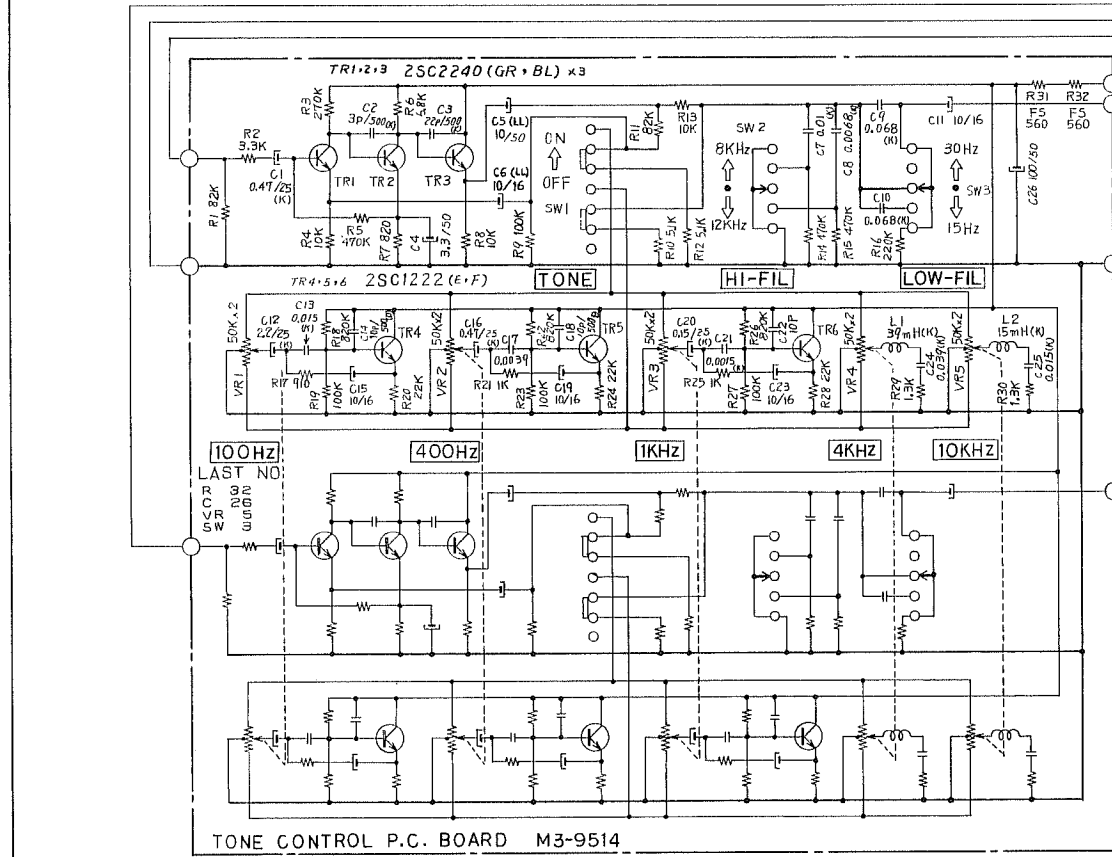
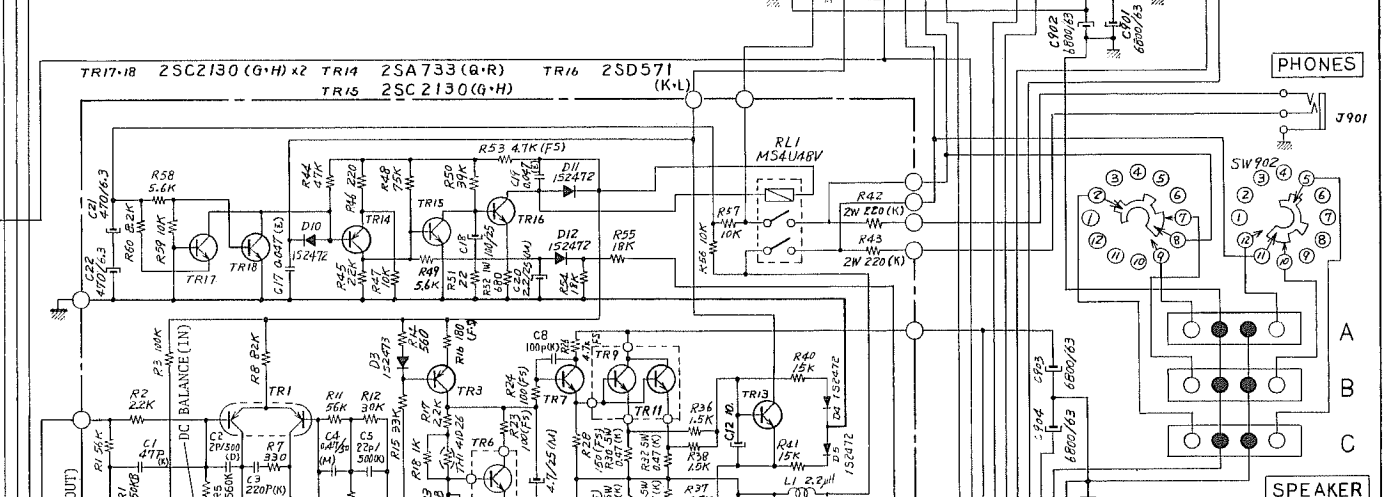
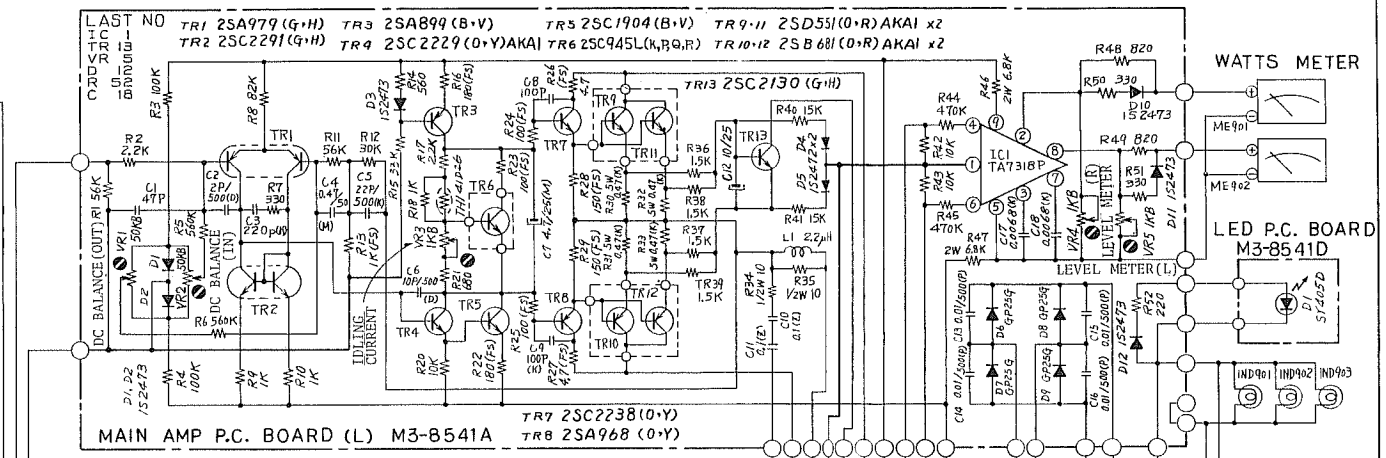
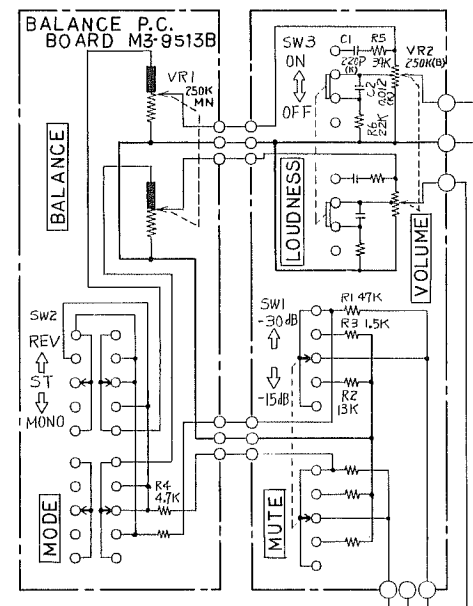
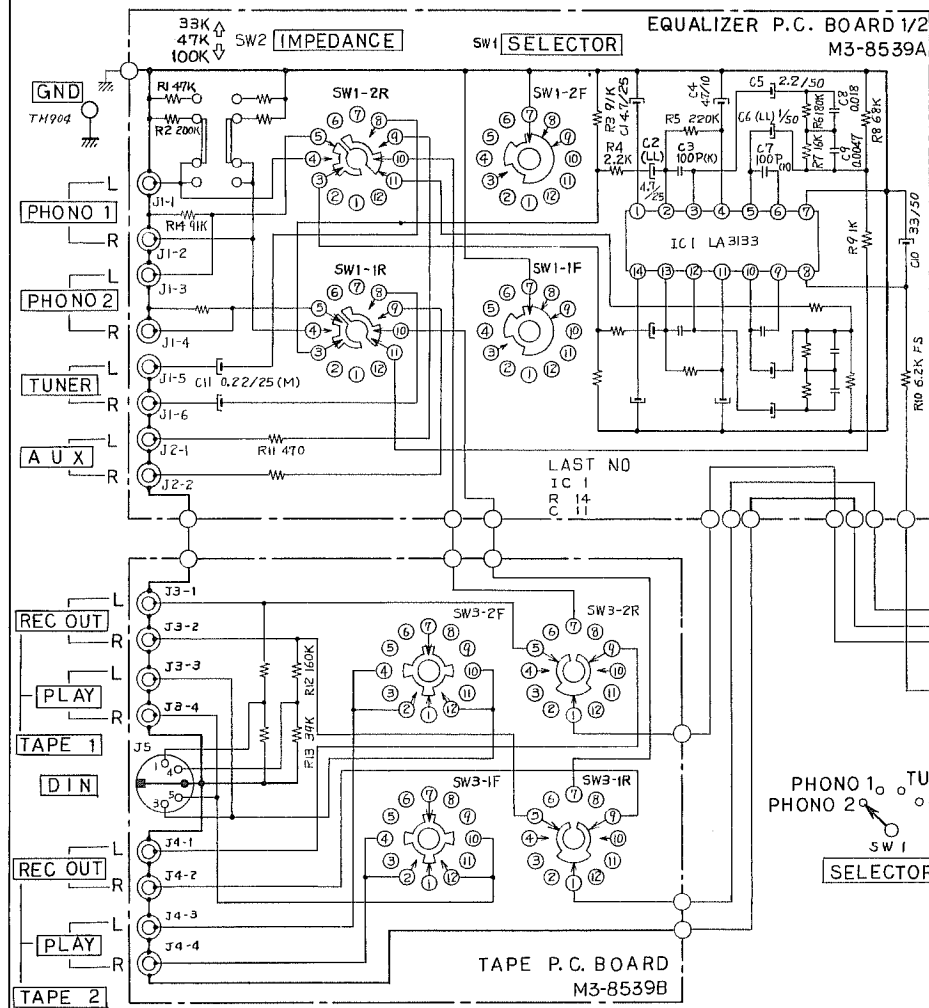


— NOTE —
UNLESS OTHERWISE SPECIFIED,
RESISTORS IN Ω 1/4W (J),
CAPACITORS IN μ F/50WV (J).

WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY,
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS
AVERTISSEMENT: Δ IL INDIQUÉ LES COMPOSANTS CRITIQUES DE SÛRETÉ. POUR
MAINTENIR LE DEGRÉ DE SÛRETÉ DE L'APPAREIL NE REMPLACER LES
COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SÛRETÉ
QUE PAR DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

AM-2850
SCHEMATIC DIAGRAM
NO 001021

VOLUME P.C. BOARD
M3-9513A



WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
AVERTISSEMENT: Δ L'INDIQUE LES COMPOSANTS CRITIQUES DE SÛRETÉ. POUR MAINTENIR LE DEGRÉ DE SÛRETÉ DE L'APPAREIL, NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE QUE PAR DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

NOTE: UNLESS OTHERWISE SPECIFIED, RESISTORS IN Ω 1/4W (J), CAPACITORS IN μF/50WV (J).

AM-2950
SCHEMATIC DIAGRAM
No 001025